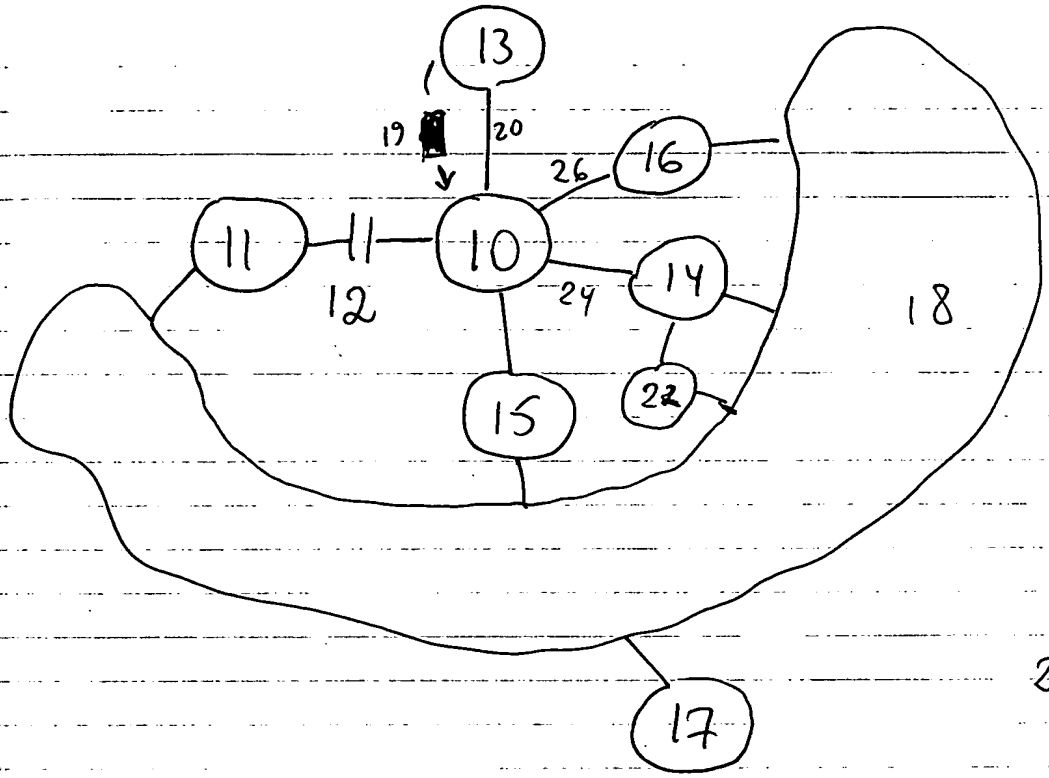

Fig. 1

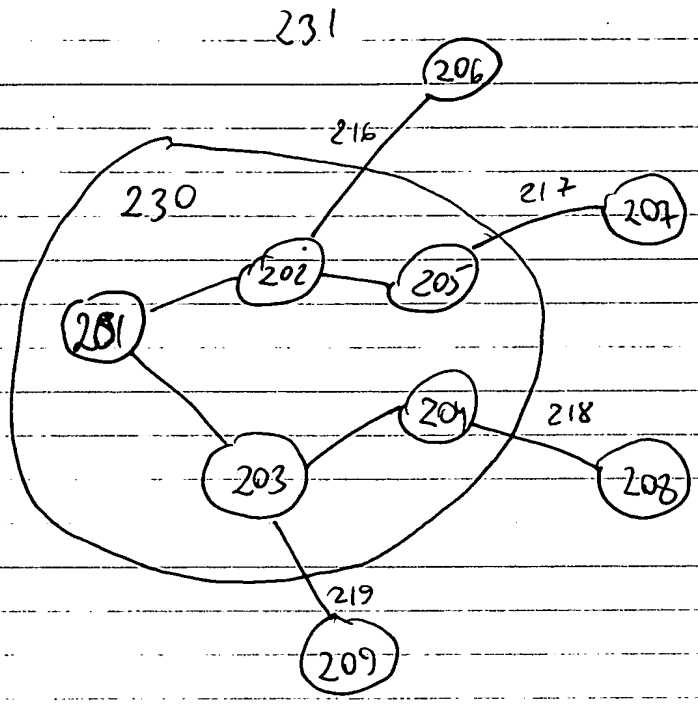

Fig. 2

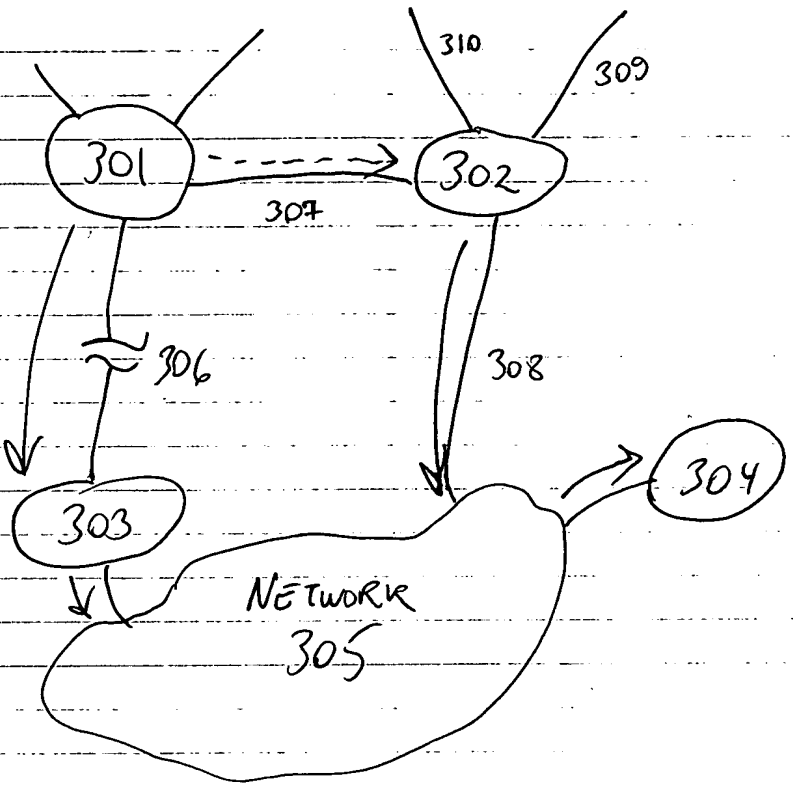

FIG. 3

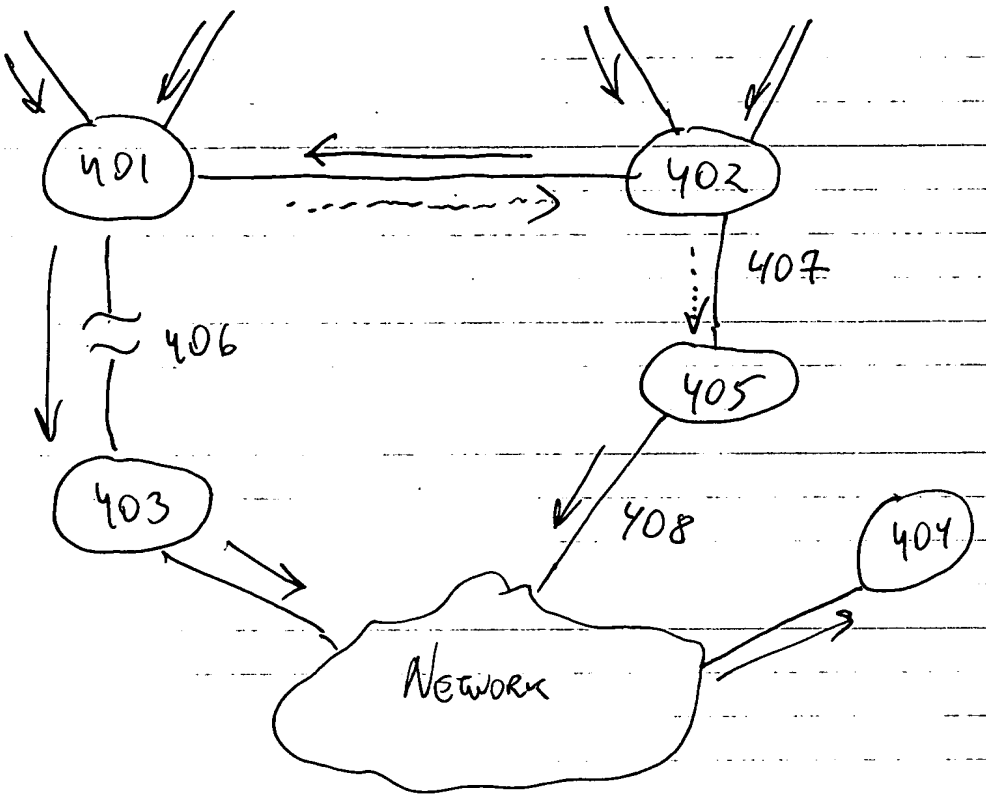

Fig. 4

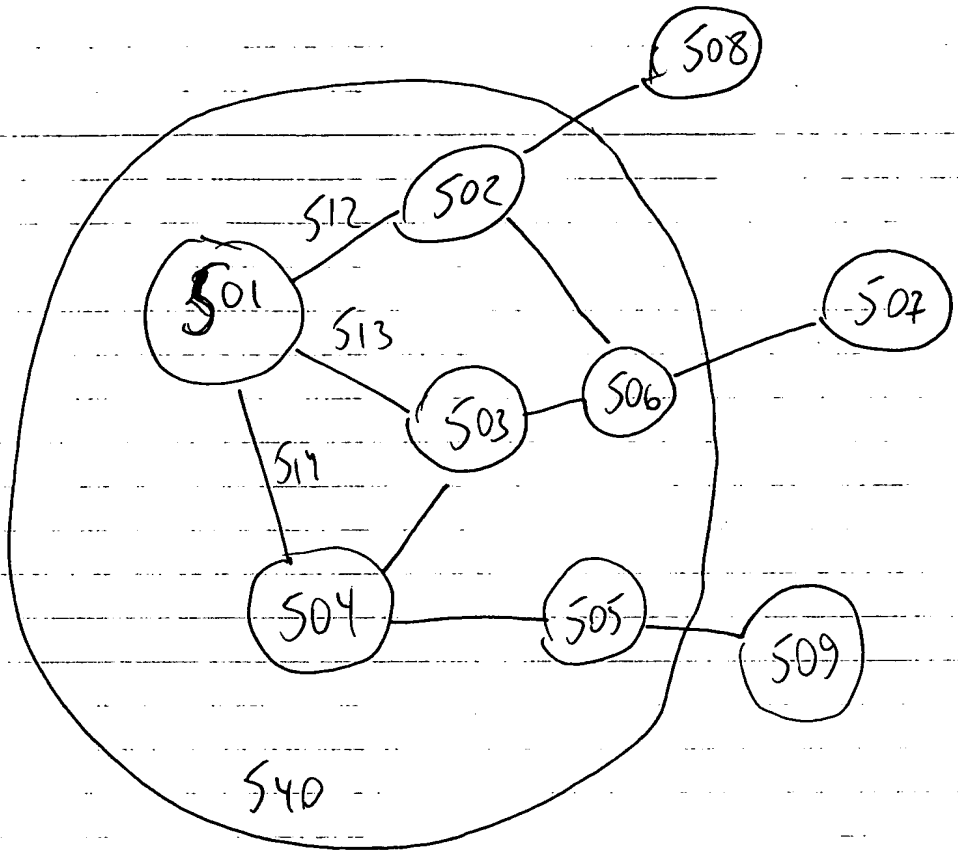

Fig. 5

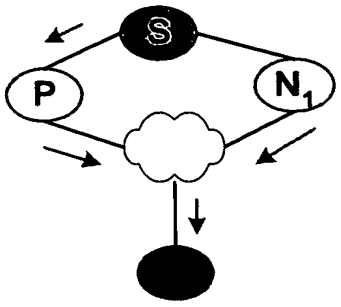

Fig. 6

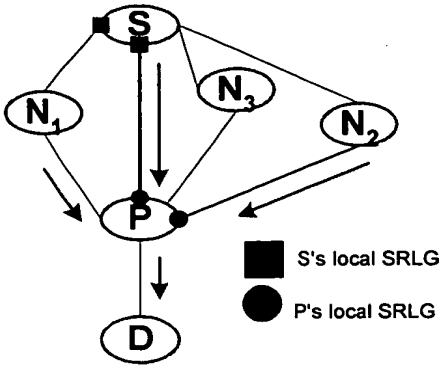

Fig. 7

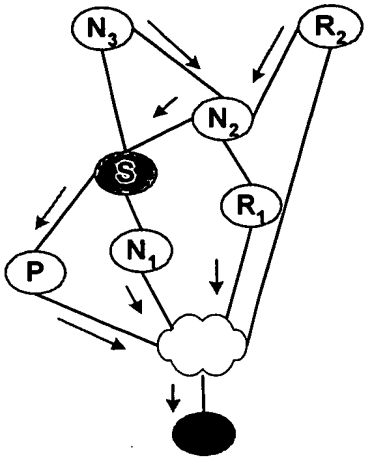

Fig. 8

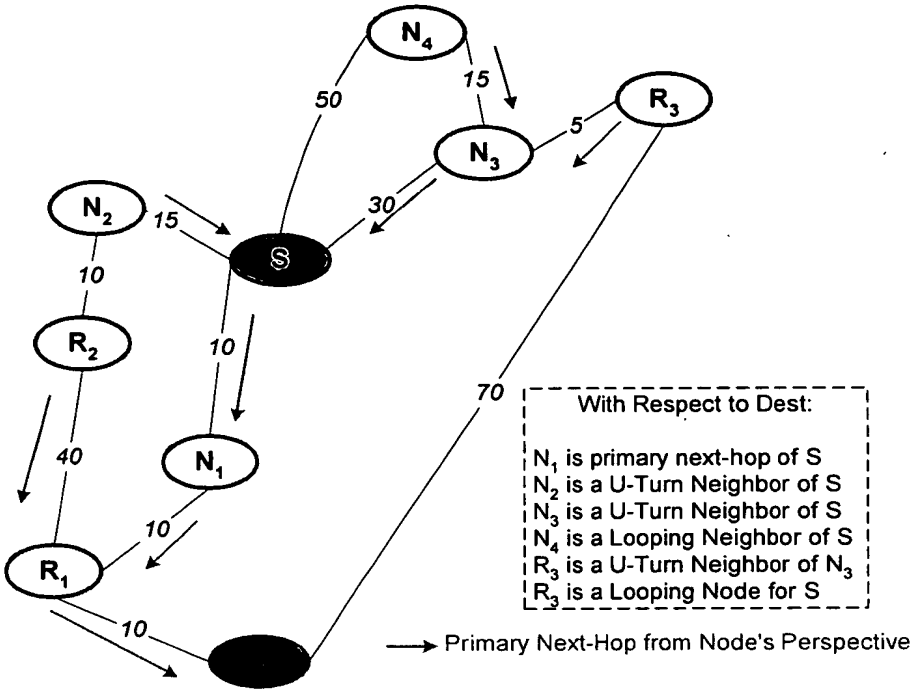
N4
50
15
R3
5
N3
30
N2
15
S
10
R2
10
70
With Respect to Dest:
N1 is primary next-hop of S
N2 is a U-Turn Neighbor of S
N3 is a U-Turn Neighbor of S
N4 is a Looping Neighbor of S
R3 is a U-Turn Neighbor of N3
R3 is a Looping Node for S
40
N1
10
R1
10
Primary Next-Hop from Node's Perspective

Fig. 9

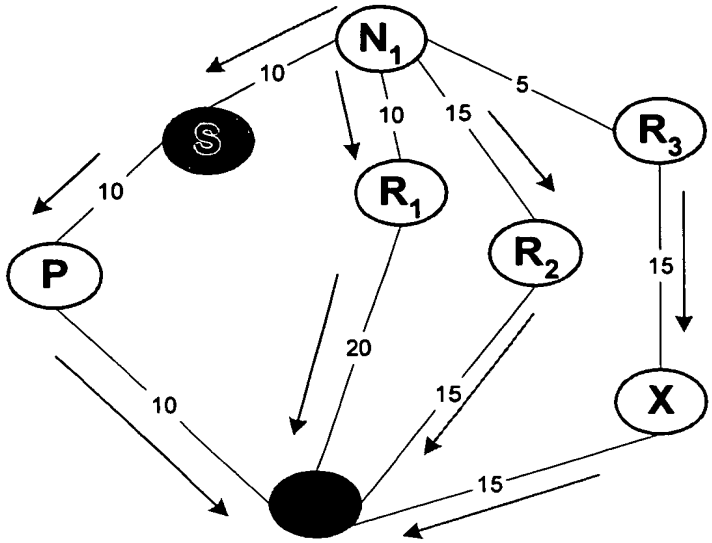

fig.10

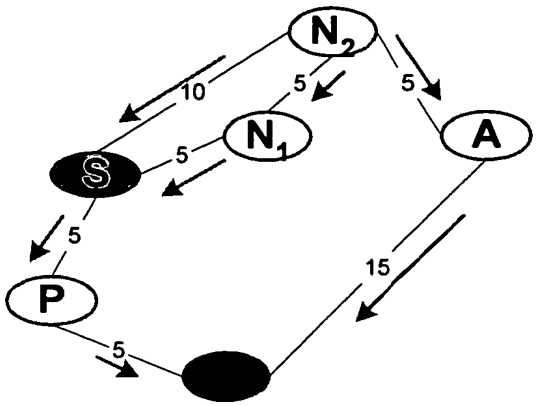

Fig. 11

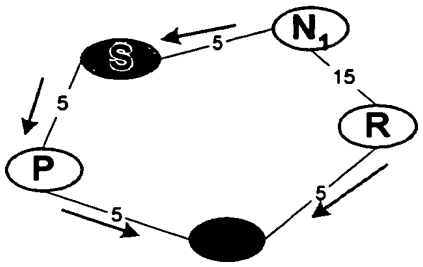

FIG. 12

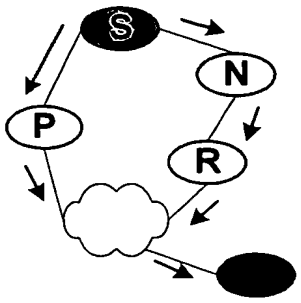

FIG. 13

If the IP destination prefix indicates destination D

If packet was received on an interface connected to a primary next-hop neighbor

Forward or discard based on **Error! Reference source not found.**

Else forward the packet to the primary next-hop.

FIG. 14

State / Interface	U-Turn Capable and no loop-free node-protecting alternate	Not U-Turn capable	U-Turn Capable and Lo p-Free N de-Pr tecting Alternate
Point-to-point	*Discard*	*Forward to Primary*	*Forward to Alternate*
Broadcast	*Forward to Primary & send an ICMP redirect, or Discard, based on configuration*	*Forward to Primary*	*Forward to Alternate*

Fig. 15

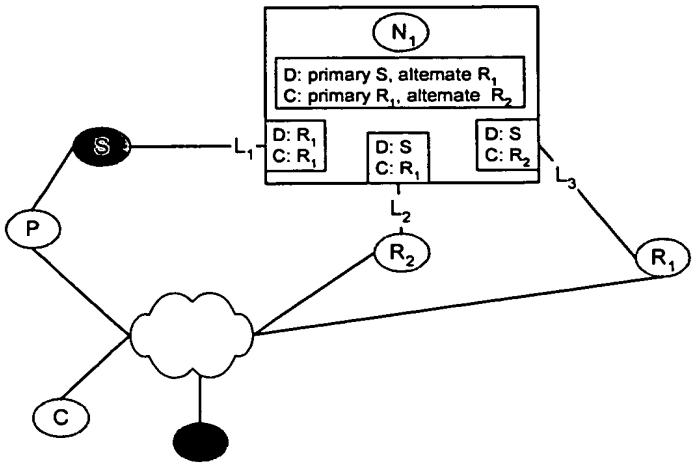
N1
D: primary S, alternate R1
C: primary R1, alternate R2
S
L1
D: R1
C: R1
D: S
C: R1
D: S
C: R2
L3
L2
P
R2
R1
C

Fig. 16

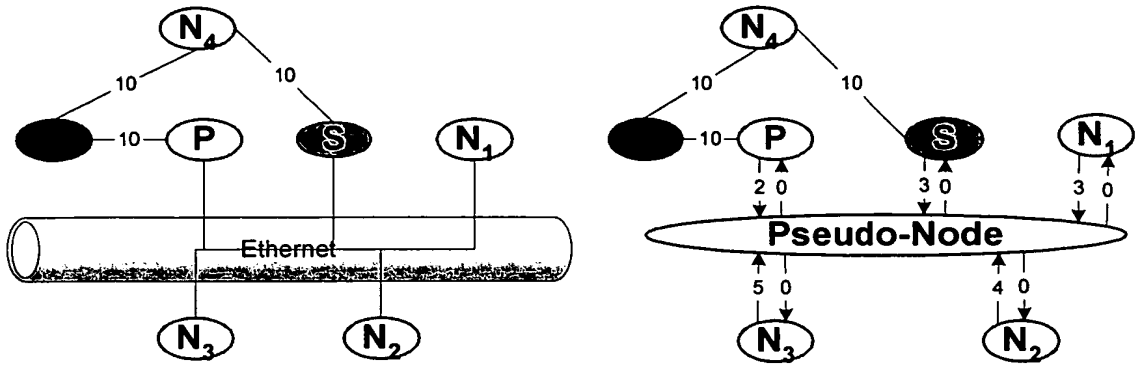
N4
10
10
10
P
S
N1
Ethernet
N3
N2
N4
10
10
10
P
S
N1
2 0
3 0
3 0
Pseudo-Node
5 0
4 0
N3
N2

Fig. 17

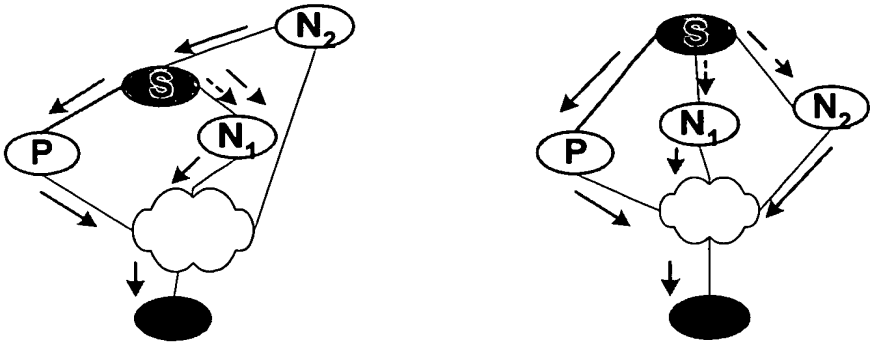

Fig. 18

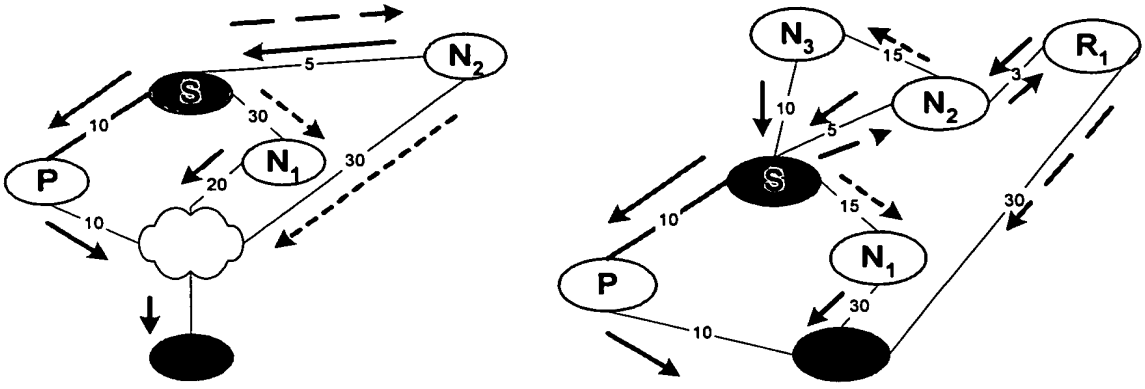

Fig. 19

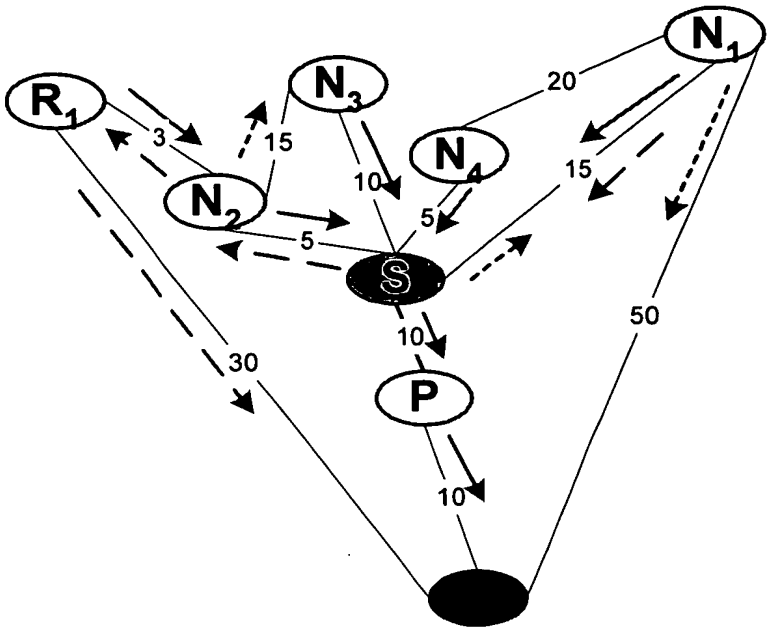

FIG. 2D

Unaffected Router (A).

Outdated Router (A).

Updated Router (A).

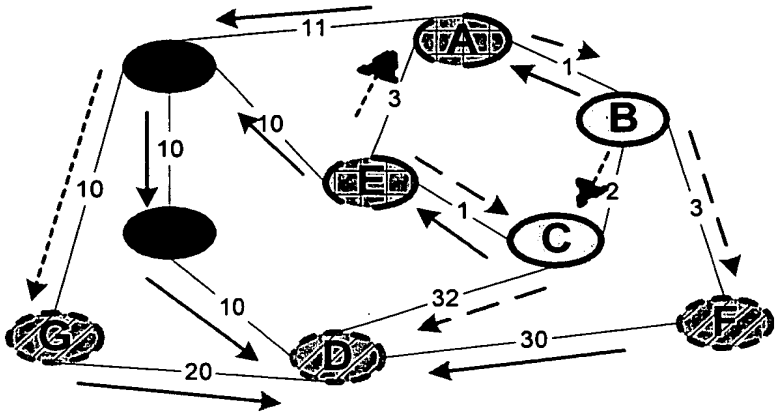

Fig. 21

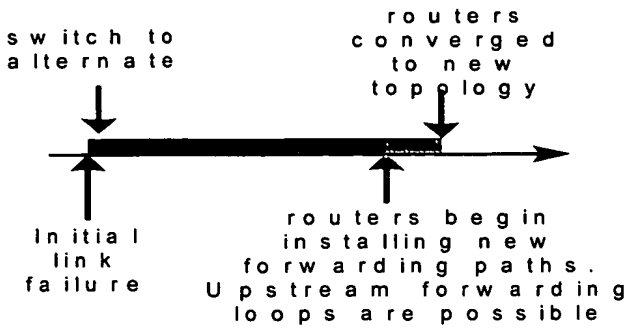
switch to alternate
routers converged to new topology
Initial link failure
routers begin installing new forwarding paths. Upstream forwarding loops are possible

FIG. 22

IP/LDP Local Protect Router Capability	Eligible Alternate Link Capability	Usable As Alternate?
0 or Not Present	0 or Not Present	NO
0 or Not Present	1	YES
1	0 or Not Present	No
1	1	YES

FIG. 23

IP/LDP Local Protect Router Capability	Eligible U-Turn Recipient Link Capability	Usable As U-Turn Recipient?
0 or Not Present	0 or Not Present	NO
0 or Not Present	1	YES
1	0 or Not Present	No
1	1	YES

FIG. 24

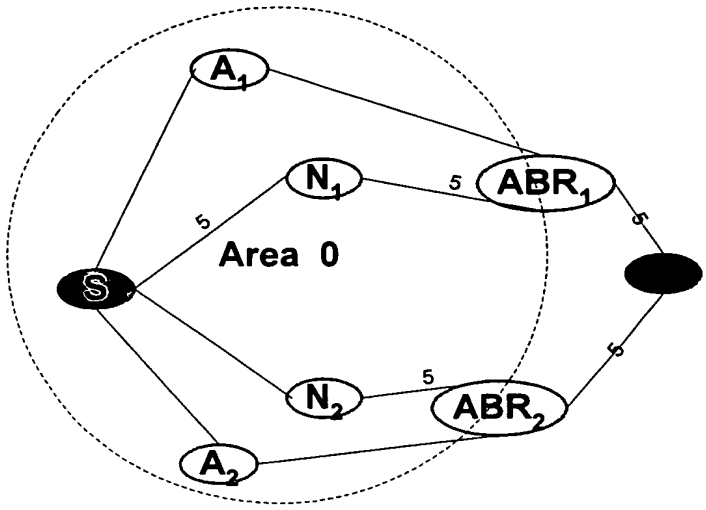

FIG. 25